

KOLESNIKOV, G.N.; MOISEYEV, A.I.

Slip and diffusion plasticity in the stress relaxation process.  
Trudy Inst.fiz.met.UFAN SSSR no.19:101-121 '58. (MIRA.12:2)  
(Diffusion) (Deformations (Mechanics)) (Crystal lattices)

ARKHAROV, V.I.; IVANOVSKAYA, S.I.; KOLESNIKOV, G.N.; MOISEYEV, A.I.

Stress relaxation and nonuniformity of diffusion mobility in  
polycrystalline austenitic iron-chromium-nickel alloys. Trudy  
Inst.fiz.met.UFAN SSSR no.19:122-126 '58. (MIRA 12:2)  
(Diffusion) (Iron-chromium-nickel alloys) (Deformations (Mechanics))

KOLESHNIKOV, G.N.; MOISEYEV, A.I.

Effect of phase transformation on the relaxation of stress.  
Trudy Inst.fiz.met.UFAN SSSR no.19:127-132 '58. (MIRA 12:2)  
(Phase rule and equilibrium) (Deformations (Mechanics))

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S/126/60/009/01/018/031  
EC91/E191

AUTHORS: Kolesnikov, G.N., and Moiseyev, A.I.

TITLE: On the Simplicity of a Physical Explanation of the  
Behaviour of Stress Relaxation Curves

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 1,  
pp 100-102 (USSR)

ABSTRACT: In order to facilitate the argument the authors assume  
that the stress relaxation process occurs in a material  
which has been subjected to uniaxial tension. The  
relaxation curve obtained experimentally under  
conditions of the so-called "pure relaxation" (Ref 1)  
represents the dependence of the average stress, acting  
on the specimen, on time, with the total deformation of  
the specimen being kept constant. As a result of  
imparting a certain total deformation (i.e. new external  
conditions) to the specimen, various relaxation  
processes, different in their physical nature, arise in  
it which bring the specimen to a new equilibrium  
condition corresponding to the changed external  
conditions (Ref 2). These processes can be divided into  
two types: (1) processes causing an increase in

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3/126/65/007/01/013/031

E091/E191

On the Simplicity of a Physical Explanation of the Behaviour of Stress Relaxation Curves

dimensions of the specimen in the direction of its axis (plastic deformation, phase transformations taking place with an increase in specific volume, etc);  
(2) processes causing a decrease in dimensions of the specimen in the direction of its axis (e.g. phase transformations which are accompanied by a decrease in specific volume, etc). The above relationships can be expressed mathematically for each concrete case of stress relaxation. If plastic deformation processes and phase changes are the main relaxation processes which determine, for a given material, the course of stress relaxation, then for the case of "pure relaxation" an equation (Eq (1), p 100) can be written (Ref 13). The magnitude of elastic deformation can be expressed by the magnitude of average stresses acting at a given moment, as shown in Eq (2) (p 101). The dependence of the average acting stress on time is expressed by Eq (3) (p 101). According to the sign and the absolute magnitude of the terms in these equations, the stress can increase, decrease or

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Stress Relaxation Curves

remain constant with time. The authors have tried to find an explanation for the increase in relaxation rate from the assumption that in this portion of the relaxation curve phase transformations occur in the specimen, which are accompanied by an increase in specific volume. This assumption can be justified if it can be shown that the rate of phase transformation increases sharply at a certain moment, after a definite time of relaxation testing. This, however, seems to be improbable. The path of the stress relaxation curve in the absence of phase transformation processes can be represented by the dashed line 1 (a figure on p 102). Precipitation of a  $\sigma$ -phase takes place in the alloy (Ref 4), giving a relaxation curve of the type under consideration (a phase transformation accompanied by decrease in specific volume - see Ref 7). The path of a relaxation curve of such a type can be explained as follows: in the portion a to b of the relaxation curve, a change in the average acting stress can be observed. This is due to the joint action of plastic

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Stress Relaxation Curves

deformation and phase transformation, the latter being accompanied by a decrease in specific volume, as a result of which the observed stress values lie above those which would have applied if there were no phase transformations (see dashed line 2, the figure on p 102). Starting from the moment of testing, the rate of phase transformation decreases and the relaxation curve gradually approaches the curve corresponding to the absence of phase transformation, or to the case of phase transformations occurring at a slow rate which changes little with time. It is evident that other combinations of relaxation processes occurring simultaneously with relaxation of the material can be suggested for an explanation of the path of the relaxation curve under consideration. The true answer can be arrived at only as a result of a detailed and general consideration of all relaxation processes occurring in a stressed material. There are 1 figure and 7 references, of which 6 are Soviet and 1 is French. ✓

Card  
4/5

KOLESNIKOV, G.P. [Kolesnikov, H.P.], kand.med.nauk; BITENBINDER, Ye.O.  
[Bitenbinder. IE.O.], kand.med.nauk; KOMPANTSEV.H.P.

Clinical epidemiological characteristics of outbreaks of serous  
meningitis in the Ukraine caused by certain Coxsackie viruses.  
Ped., akush. i gin. 24 no.1:22-25'62. (MIRA 16:8)

1. Institut infektsionnykh bolezney AMN SSSR, Kiyev.  
(UKRAINE—MENINGITIS) (COXSACKIE VIRUSES)



5(0)

AUTHOR:

Kolesnikov, G. S., Doctor of Chemical Sciences

SOV/30-59-9-14/39

TITLE:

The Establishment of Scientific Fundamentals of the Chemistry of Polymers

PERIODICAL:

Vestnik Akademii nauk SSSR, 1959, Nr 9, pp 69-72 (USSR)

ABSTRACT:

In the People's Republic of China (PRC) the development of the chemistry of high-molecular compounds started only five or six years ago; nevertheless, great success has been achieved. The author of the present paper visited the PRC for three months at the end of 1958, where he had an opportunity to study thoroughly the research work done by Institute of Chemistry of the Academy of Sciences, PRC (Peking). This Institute was established in 1955, and began to work in 1956. Two of its four laboratories are occupied with research work in high-molecular compounds and initial products for synthesizing them. The Institute collaborates with industries. The Institute of Chemical Technology of the Ministry of Chemical Industry, PRC works also in the field of polymerization. It is equipped with experimental plants and deals with industrial problems. The Mukden Branch of the Institute and the Institute of Applied Chemistry of the Academy of Sciences, PRC, which

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5(3)  
AUTHOR: Kolesnikov, G. S. 307/52-59-7-27/35  
TITLE: Carbon Chain Polymers and Copolymers (Karbotsesnnye polimery i sopolimery). Communication 16. Synthesis and Polymerization of 2,4-Dichloro Styrene (Soobshcheniye 16. Sintez i polimerizatsiya 2,4-dikhlorstirola)  
PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 7, pp 1333 - 1335 (USSR)  
ABSTRACT: The present paper deals with the investigation of the influence exerted by two chlorine atoms introduced into the styrene nucleus upon the vitrification temperature of the polymer and upon the polymerization rate under the conditions: reaction temperature 100° and absence of initiators and catalysts. The reaction rate was measured from the quantity of polymer forming in a certain time interval. The polymerization reaction at 100° proved to be a reaction of the 1st order with the velocity constants  $2.28 \cdot 10^{-4} \text{sec}^{-1}$ . Concerning the precipitation of the polymer, the vitrification temperature was determined by extrapolation of the straight-lined part of the thermomechanical curve. The latter was plotted by B. L. Tsetlin. The vitrification temperature re-

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Carbon Chain Polymers and Copolymers. Communication 16. SOV/62-59-7-27/30  
 . Synthesis and Polymerization of 2,4-Dichloro Styrene

sulted to be at  $131^{\circ}$ . The molecular weight of the polymer was determined in dependence of its synthesis temperature (viscosimetrically and according to Staudinger's method). The molecular weight was found to drop with rising temperature (data in a table). The dependence of this change in the temperature range of from  $100^{\circ}$  to  $211^{\circ}$  was reproduced by the equation

$$M = \frac{A}{T^a}, \text{ with the constants } A = 7.912 \cdot 10^{13} \text{ and } a = 3.63. \text{ The ex-}$$

perimental part contains a description of the synthesis of dichloro toluene, dichloro benzaldehyde, 2,4-dichloro phenyl methyl carbinol and dichloro styrene. There are 1 table and 6 references, 4 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR  
 (Institute of Elemental-organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: November 1, 1957

Card 2/2

KOLESHNIKOV, G.S.; SUPRUN, A.P.; SOBOLEVA, T.A.; YERSHOVA, V.A.

Carbochain polymers and copolymers. Part 26: Polymerization  
and copolymerization of 1,1,2-trichloro-1,3-butadiene.

Vysokom. soed. 2 no.8:1266-1269 Ag '60. (MIRA 13:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.  
(Butadiene) (Polymerization)

15-8070

37913  
S/251/62/028/003/001/001  
1018/I218

Author: Kolesnikov, G. S. and G. T. Gurgenedze.

Title: COPOLYMERIZATION OF METHACRYLATE  $\omega$ -OXYENANTHIC ACID  
POLYESTER WITH ACRYLONITRILE, STYRENE, AND VINYL ACETATE

Periodical: *Soobshcheniya Akademii nauk Gruzinskoy SSR*. 28(3), 1962, 297-303.

*Text:* Studies were made on the following systems: methacrylate  $\omega$ -oxyenanthic acid polyester (MPOE) -- acrylonitrile; MPOE-styrene; and MPOE-vinyl acetate. The synthesis of MPOE and of polyoxyenanthate are described. Thermomechanical and chemical properties of polyoxyenanthate are given. The polyester was prepared by polycondensation of  $\omega$ -oxyenanthic acid at first in oxygen-free stream of nitrogen and then in vacuum of 3-4 mm. The product was dissolved in toluene and an excess of methacrylic acid chloroanhydride at 10-15°C added. The reaction mixture was kept for 5-6 hours. The product was precipitated by *n*-hexane and dried at room temperature to constant weight. Polymerization of MPOE with acrylonitrile yielded copolymers of various composition. Copolymerization was carried out in the presence of 0.2M% of azo-iso-butyric acid dinitrile (in M% from acrylonitrile) at 70°C during 15 hours in vacuum sealed ampules. The copolymer was dissolved in dimethylformamide, precipitated by methanol and dried. MPOE excess can be removed by extraction with boiling benzene. Analysis, by N determination. Thermomechanical properties of the copolymer

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## COPOLYMERIZATION....

S/251/62/028/003/001/001  
1018/1218

are described. Copolymerization with styrene was carried out in the presence of 1.7 weight % (from styrene) of benzyl peroxide, at 70°C for 15 hours in vacuum sealed ampules. The product was dissolved in benzene, precipitated by methanol and dried. Copolymer composition determined by C content. Copolymerization of MPOE with vinyl acetate was carried out in the presence of 0.2M% (from vinyl acetate) of azo-iso-butyric acid dinitrile at 70°C for 30 hours in vacuum sealed ampules. Copolymer precipitated from 2% acetone solution by *n*-hexane, washed with *n*-hexane and benzene and vacuum dried. Composition determined by C content. Copolymerization of MPOE with acrylonitrile, styrene, and vinyl acetate yielded products with side chains of varying purity. Their properties in solutions and condensed form were determined. There are 3 figures and 3 tables.

*Association:* Akademiya nauk Gruzinskoy SSR Institut prikladnoii khimii i e'lektrokhimii. (AN Georgian SSR Institute of Applied Chemistry and Electrochemistry).

*Submitted:* April 12, 1961.

Card 2/2

S/190/62/004/011/009/014  
B106/B101

AUTHORS: Kolesnikov, G. S., Gurgenidze, G. T.

TITLE: Carbochain polymers and copolymers. XLXI. Graft copolymers from acrylonitrile and  $\omega$ -hydroxybenzoic polyester methacrylate

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 11, 1962, 1709 - 1713

TEXT: Graft copolymers were prepared by bringing acrylonitrile into reaction with the  $\omega$ -hydroxybenzoic polyester methacrylate I; molecular weight 6000. The copolymerization was carried out in bulk (in the presence of azoisobutyric dinitrile for 15 hrs at 70°C in vacuo) and in emulsion (in the presence of ammonium sulfate for 6 hrs at 50°C; soap as emulsifier). Intrinsic viscosity, Huggins' constant, and the ratio polyester/acrylonitrile of the graft copolymers obtained were determined. When the content of I increases in the initial mixture, the number of grafted side chains in the copolymer also increases. A rising frequency of grafting is associated with greater symmetry of the macromolecules in solution (increase of the Huggins' constant). This is due to interaction

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Carbochain polymers...

S/190/62/004/011/009/014  
B106/B101

of the polyester side chains. When the side chains are split off by methanolysis the Huggins constant is reduced and at the same time the intrinsic viscosity of the copolymer is increased. Hence, the decrease in symmetry of the macromolecules in solution is not caused by degradation of the main chain of the graft copolymer. The yield A of the products of methanolysis is consistent with the values calculated by the equation  $A(\%) = 53Q/(53Q + 6000)$  (Q is the distance between the grafted side chains of the polyester, expressed by the number of elementary links of acrylonitrile). The grafting of I side chains to polyacrylonitrile results in a decrease of the softening point of the polymers, this decrease being the more marked, the smaller the value of Q. Analysis of the x-ray pictures of grafted copolymers with different grafting frequencies showed that the structural ordering of the copolymer decreases with increasing Q. The reason evidently is that with increasing Q the ordered regions formed by interaction of the polyester side chains in the condensed phase decrease in proportion to the total volume of the graft copolymer. There are 3 figures and 2 tables.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute of Elemental Organic Compounds AS USSR)  
SUBMITTED: July 6, 1961  
Card 2/2



S/074/62/031/009/001/001  
I001/I201

AUTHOR: Kolesnikov, G.S., and Tseng Han-ming

TITLE: Linked copolymers

PERIODICAL: Uspekhi khimii, v. 31, no. 9, 1962, 1025-1045

TEXT: The article reviews Western and Soviet literature for the period 1933-1962. Korchak's method of classification based on structure is used. The following subjects are considered: A) radical linked carbon-chain copolymers (1.- chain-transfer reactions; 2.- methods based on presence of potentially active groups; 3.- copolymerization at the double bonds in the macro-molecule); B) linking by ionic polymerization (1.- cationic polymerization, 2.- anionic polymerization); C) chemical inter-

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ACCESSION NR: AP4037292

S/0190/64/006/005/0957/0961

AUTHORS: Maloshitskiy, A. S.; Kolesnikov, G. S.; Kalinovskaya, T. P.

TITLE: Carbochain polymers and copolymers. 54. Polymerization of methylmethacrylate in the presence of n-butylboryldifluoride

SOURCE: Vyssokomolekulyarnyye soedineniya, v. 6, no. 5, 1964, 957-961

TOPIC TAGS: methylmethacrylate polymerization, butylboryldifluoride polymerization initiator, water catalysis, dilatometric technique

ABSTRACT: The polymerization of methylmethacrylate (MMC) in the presence of 0.15 mole% n-butylboryldifluoride (BBD) was conducted in a dilatometer at 30C in an atmosphere of argon. Since no reaction took place in absolutely dry ingredients, the opportunity was presented to study the effect of water on the polymerization process. From 10 to 80 mole% of water per mole of MMC were added to the ampules containing the MMC and BBD, and the mixture was heated for 2 to 45 hours, yielding 0.33-4.75% polymer. It was found that the maximum polymerization rate was obtained at 50 mole% of water per mole of MMC. A detailed description and drawings of the apparatus used for adding the BBD and MMC to the ampule are presented. Orig. art.

Card 1/2

ANDRIANOV, K.A., akademik; KOLESNIKOV, G.S.; RODIONOVA, Ye.F.; LUK'YANOVA,  
G.M.; PERISOVA, N.V.

Thermal degradation of the polymers of vinylphosphinic acid esters.  
Dokl. AN SSSR 163 no.1:97-99 J1 '65. (MIRA 18:7)

1. Institut elementoorganicheskikh soedineniy AN SSSR i Moskovskiy  
khimiko-tekhnologicheskii institut im. D.I.Mendeleeva.

L 27328-66 EWT(m)/EWP(j)/T IJP(c) RM  
 ACC NR. AP6008984 (A) SOURCE: 1989/1992

AUTHORS: Smirnova, O. V.; Fortunatov, O. G.; Garbai, N. M.; Kolesnikov, G. S. 37  
 ORG: Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut) A

TITLE: Synthesis and investigation of polycarbonates prepared by interphase polycondensation of di-(4-hydroxyphenyl)-phenylmethane 1

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 11, 1965, 1989-1992

TOPIC TAGS: polymer, polycarbonate plastic, polymer chemistry, polymerization, sodium hydroxide

ABSTRACT: This investigation was undertaken to extend the work of H. Schnell (Industr. and Engng. Chem., 51, 157, 1959) on the synthesis of polycarbonates. The reaction of di-(4-oxyphenyl)phenylmethane with phosgene was investigated. The conditions for maximum yield of product and the effect of NaOH concentration and the initial concentration of reactants on the yield and on specific viscosity were determined. The experimental results are presented graphically and are in good agreement with those obtained by El' Said Ali Khasan (Dissertatsiya, 1964) for the synthesis of polycarbonates from methyl- or chloro-substituted diphenyls. Orig. art. has: 3 graphs.

SUB CODE: 07, 11/SUBM DATE: 31Dec64/ ORIG REF: 002/ OTH REF: 00

UDN: 64.64+678.674

013, 140, 5  
28  
15  
Lukel'son, I. I.; Kolesnikov, G. S.; Glukhovskiy, V. S.

A method for producing sulfur-containing polymers. / Class 32, No. 170685

'Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 71

32:32 sulfur, polymer, aliphatic compound, aromatic compound

This Author's Certificate introduces a method for producing sulfur-containing polymers by interacting elemental sulfur with compounds of the aliphatic-aromatic series in the presence of a Friedel-Crafts catalyst. A wider selection of polymers is produced by using polyaromatic alcohols as the starting materials.

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000723810006-4

ORIGINATOR: Voronezhskiy Tekhnologicheskii Institut (Voronezh Technological  
Institute)

DATE: 03Jun63

ENCL: 00

SUB CODE: OC, GC

NO RET GOV: 000

HER: 000

Card: 1/1

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000723810006-4"

I 00632-67 EWT(1)/EWT(m)/I/EWP(j) IJP(c) RO/RM

ACC NR: AP6012715

SOURCE CODE: RP/190/06/008/004/0703/0707

Author: Kolesnikov, G. S.; Smirnova, O. V.; Zil' Said Ali Khasan.

ORG: Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy Khimiko-Tekhnologicheskii Institut)

TITLE: Mixed polycarbonates from di-(4-hydroxy-3-methylphenyl) methane

Vysokomolekulyarnyye soyedineniya, v. 8, no. 4, 1966, 703-707

TOPIC TAGS: phosgene, propane, cyclohexane, methane, polycarbonate, polymer, dielectric property

ABSTRACT: By interaction of phosgene with mixtures of di-(4-hydroxy-3-methylphenyl) methane with the 2,2-di-(4-hydroxy-3-methylphenyl) methane, 2,2-di-(4-hydroxy-3-methylphenyl) cyclohexane, and di-(4-hydroxy-3-methylphenyl) phenyl methane, mixed polycarbonates of different compositions were synthesized. The second-order transition temperatures of the mixed polycarbonates changed monotonously with changes in their composition, indicating the isomorphous substitution of the main polymer links in the exchange of one diphenole for another. The mechanical and dielectric properties of films of the mixed polycarbonates were determined. The hydrolytic resistance of the mixed polycarbonates obtained with 9 N NaOH is considerably higher than that of polycarbonates based on diane. Orig. art. has: 1 figure and 5 tables. [Based on authors' abstract]

SUB CODE: 11, 07/ SUBM DATE: 28Apr65/ ORIG REF: 003/ OTH REF: 001  
Card 1/1 pb UDC: 678.674

Card 1/1 SUB CODE: 07/ SUBM DATE: 13May65 UDC: 661.103.123.2:678.743-139

APPROVED

KOLESNIKOV, G.S.; YARALOV, I.K.

Block copolymers. Usp.khim. 34 no.3:454-487 Mr '65.

(MIRA 18:4)

1. Moskovskiy khimiko-tekhnologicheskij institut imeni Mendeleeva.



L 10423-67 EWT(m) DS/RM  
 ACC NR: AP6029913 (A) SOURCE CODE: UR/0413/66/000/015/0087/0087 32  
 AUTHORS: Kolesnikov, G. S.; Chuchin, A. Ye.; Tevlina, A. S.; Yushmanova, V. A.  
 ORG: none  
 TITLE: A method for obtaining a porous sulfocationite. Class 39, No. 184434  
 /announced by Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy  
 Khimiko-tekhnologicheskii institut)  
 SOURCE: Izobret, prom obraz tov zn, no. 15, 1966, 87  
 TOPIC TAGS: copolymerization, styrol , sulfuric acid, ion  
 ABSTRACT: This Author Certificate presents a method for obtaining a porous sulfo-  
 cationite by the copolymerization of styrol and divinyl benzine. The copolymer so  
 obtained is then sulfurized with sulfuric acid. To increase the sorptional ability  
 of the cationite to large organic ions, a polymer hydroperoxide from polyarylenealkyl  
 is introduced into the copolymerization reaction.  
 SUB CODE: 11, 07/ SUBM DATE: 01Dec64  
 Card 1/1  
 UDC: 661.183.123.2:678.746.22-136.622:66.094.524.5

1 10072-07 0007(n) ES/RI

ACC NR: AK6029926

(A)

SOURCE CODE: UR/0413/66/000/0015/0089/0090

INVENTORS: Kolesnikov, G. S.; Tovlina, A. S.; Chuchun, A. Yo.; Barabashkina, I. A.; Yushmanova, V. A.

ORG: none

TITLE: Method for obtaining porous sulfo-ion-exchange resin. Class 39, No. 164450V /announced by Moscow Institute of Chemical Technology imeni D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut)

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 89-90

TOPIC TAGS: ion exchange resin, polymerization, porosity, polymer, resin

ABSTRACT: This Author Certificate presents a method for obtaining a porous sulfo-ion-exchange resin by graft copolymerization of styrol and a polymer containing isopropyl groups in the presence of a free-radical type initiator and of divinyl benzene as the cross-linking agent. The polymerization is followed by sulfonation with either sulfuric acid or weak oloum. To obtain a polymer with different porosity (capable of sorbing large organic ions), polyarylenealkyl is used as the isopropyl-group-containing polymer.

SUB CODE: 11/ SUBM DATE: 05Feb65

Card 1/1 UDC: 661.183.123.2:62-405.8:678.746.22-139:66.094.403

L 01042-67 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6019544

(A)

SOURCE CODE: UR/0190/66/008/006/1094/1097

AUTHOR: Fedotova, O. Ya.; Shtil'man, M. I.; Kolesnikov, G. S.; Chernysheva, V. G. <sup>32</sup><sub>37</sub>

ORG: Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy khimiko-tehnologicheskii institut) <sup>B</sup>

TITLE: Polyamides based on higher unsaturated dicarboxylic acids 7

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 6, 1966, 1094-1097

TOPIC TAGS: polyamide, polymer structure, polycondensation, polymerization kinetics, DICARBOXYLIC ACID

ABSTRACT: Polycondensation of 6-dodecene-1,12-dicarboxylic acid and 6,10-hexadecadiene-1,16-dicarboxylic acid and their dimethyl esters with hexamethylenediamine was studied and the properties of the product polyamides were determined. The object of the work was to determine optimum polycondensation conditions. The first phase of the polycondensation was conducted either in an inert gas atmosphere or in a sealed ampoule by heating the reaction mixtures for 3-7 hours at 170°-300°C. This was followed by 3-7 hour heating at 180°-190°C at 3 mm Hg pressure. The starting mixtures contained 1-5 mol % (based on hexamethylenediamine) of either water or ethanol or phenol. It was found that the diesters were much less reactive than the corresponding dicarboxylic acids. The optimum condition for obtaining high molecular weight polymer (specific viscosity up to 0.35) was found to be a two-step process, the first step carried out

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UDC: 541.64+678.675

L 01042-67

ACC NR: AP6019544

for 5 hours in the presence of 5 wt % water, the second step carried out for 3 hours in vacuo, the temperature ranging from 170°-300°C. The polyamide product was found to be stable up to 300°C. The dependence of deformation of the polyamides upon temperature is graphed. Orig. art. has: 3 figures, 3 tables.

SUB CODE: 07/ SUBM DATE: 08Jun65/ ORIG REF: 001

swm  
Card 2/2

L 01243-67 EWT(1)/EWP(c) IJP(c)

ACC NR: AP6031771 (N) SOURCE CODE: UR/0055/66/000/003/0125/0128

AUTHOR: Kolesnikov, N. N.

ORG: Department of Theoretical Mechanics, Moscow State University (Kafedra teoreticheskoy mekhaniki, Moskovskiy gosudarstvennyy universitet)

TITLE: Stability of a free gyrostat.

SOURCE: Moscow. Universitet. Vestnik. Seriya I. Matematika, mekhanika, no. 3, 1966, 125-128

TOPIC TAGS: gyrostat, free gyrostat, motion equation, Lyapunov Chetayev method, inequality state

ABSTRACT: A particular solution is obtained for equations of motion derived by the author ( see N. N. Kolesnikov, Prikladnaya matematika i mekhanika, 1963, v. 27, no. 4, 699-702) for a free gyrostat in a central Newtonian field of force. These equations are:

$$M \frac{d^2 \xi}{dt^2} = \frac{\partial U}{\partial \xi}, M \frac{d^2 \eta}{dt^2} = \frac{\partial U}{\partial \eta}, M \frac{d^2 \zeta}{dt^2} = \frac{\partial U}{\partial \zeta}, \quad (1)$$

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UDC: 531.382

L 01243-67

ACC NR: AP6031771

0

$$\left. \begin{aligned} A \frac{dp}{dt} + \frac{dk_2}{dt} + (C-B)qr + qk_3 - rk_1 &= L_x, \\ B \frac{dq}{dt} + \frac{dk_3}{dt} + (A-C)rp + rk_1 - pk_2 &= L_y, \\ C \frac{dr}{dt} + \frac{dk_1}{dt} + (B-A)pq + pk_2 - qk_1 &= L_z. \end{aligned} \right\} \quad (2)$$

where A, B, C are the principal central inertia moments of a gyrostat, considered a solid, and  $k_1, k_2, k_3$  are projections of the gyrostat's moment along the x, y, z

axis, rigidly connected with the carrier body of the gyrostat and directed along the principal central axes of the gyrostat's inertia. The stability of the solution obtained is determined by the Lyapunov-Chetayev method. The state of inequality is shown to be a sufficient condition of stability for the nondisturbed motion of a gyrostat with respect to some of the variables in the problem. Orig. art. has: 4 formulas. [Based on author's abstract] [SP]

SUB CODE: 18/ SUBM DATE: 18May65/ ORIG REF: 004/

Card 2/2 hs

L 46995-66 EWP(j)/EMT(m)/T RM/DS/WW

ACC NR: AP6027276

(A)

SOURCE CODE: UR/0191/66/000/008/0021/0023

AUTHOR: Alovitdinov, A. B.; Tavlina, A. S.; Kolesnikov, G. S.34  
B

ORG: none

TITLE: Polyelectrolytes based on copolymers of  $\alpha$ -phenylvinylphosphonic acidSOURCE: Plasticheskiye massy, no. 8, 1966, 21-23

TOPIC TAGS: ion exchange resin, phosphonic acid, vinyl compound, copolymer

ABSTRACT: Polyelectrolyte ion exchangers formed by the copolymerization of  $\alpha$ -phenylvinylphosphonic acid ( $\alpha$ -PVPA) with vinyl monomers are used for separating ions of polyvalent metals. The strong bonding between these ions and the phosphonic and phosphonous acid groups is due to chelation. The paper gives the results of a potentiometric titration of polyelectrolyte ion exchangers synthesized by copolymerization of  $\alpha$ -PVPA with vinyl monomers having no ionogenic groups. The curves obtained (pH vs. KOH added) showed two inflections corresponding to the degrees of dissociation of monomeric  $\alpha$ -PVPA. From these curves, the "apparent" pK values of the active groups of the ion exchangers were determined and found to coincide with the pK of the monomeric acid. The carboxyl groups of ion exchangers synthesized by copolymerization of  $\alpha$ -PVPA with methacrylic and acrylic acids dissociate at pH 4-5.5. Potentiometric titration curves of four samples of ion exchangers (AF-40, MAF-40, MMF-0,40 and SF-0,50) were recorded in the presence of 0.1 N NaCl and in its absence; in the presence of NaCl,

Card 1/2

UDC: 678.746.872-13 : 661.183.123

1. 46995-66

ACC NR: AP6027276

they differed substantially from each other, showing distinct working intervals of the various groups of the polyvalent cation exchanger. It is shown that cation exchangers containing -COOH groups in addition to  $-P(O)(OH)_2$  groups have a greater capacity than those containing a phosphonic group only. Orig. art. has: 3 figures and 2 tables.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 005/ OTH REF: 006

Card

2/2



L 46291-66 ENP(j)/ENT(m) IJP(c) RM/WW/JWD

ACC NR: AP6027777

SOURCE CODE: UR/0190/66/008/008/1440/1444

15  
B

AUTHOR: Kolesnikov, G. S.; Fedotova, O. Ya.; Khofbauer, E. I.; Khuseyn Khamid  
Mokhamed Ali Al-Suri

ORG: Moscow Chemical Technology Institute im. D. I. Mendeleev (Moskovskiy khimiko-  
tekhnologicheskii institut)

TITLE: Synthesis and study of poly(amido acids), and polyimides from 2,3,5,6-  
biphenyltetracarboxylic dianhydride and aromatic diamines

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 8, 1966, 1440-1444

TOPIC TAGS: ~~poly(amido acid)~~ polyimide, heat resistant material, polymer synthesis

ABSTRACT: A study has been made of the synthesis and imidization of poly(amido  
acids) from 2,3,5,6-biphenyltetracarboxylic dianhydride and aromatic diamines  
(benzidine or 4,4'-diaminodiphenylmethane) in dimethylformamide or dimethyl sulfoxide.  
Poly(amido acids) with the highest molecular weights were obtained in dimethyl  
sulfoxide in two steps by heating the reactants, first for 2 hr at 40C and then  
for several hours at 50C (benzidine) or 75C (4,4'-diaminodiphenylmethane). It was  
established that imidization of the acids should be carried out at 250-300C. The  
polyimides obtained were soluble in organic solvents and alkalies. Orig. art. has:  
1 figure and 3 tables. [B0]

SUB CODE: 07/ SUBM DATE: 09Jul65/ OTH REF: 016/ ATD PRESS: 5057  
Card 1/1

UDC: 541.64+678.01:54+678.01:53

L 39706-66 ENT(m)/ETC(f)/T RM/DS/GD-2

ACC NR: AF6007975

(A)

SOURCE CODE: UR/0191/66/000/003/0066/0069

13

AUTHOR: Teblina, A. S.; Skripchenko, N. I.; Kolesnikov, G. S.

12

B

ORG: none

TITLE: Synthesis of water-soluble polymeric bases and preparation of ion-exchange membranes from them

SOURCE: <sup>1</sup>Plasticheskiye massy, no.3, 1966, 66-69

TOPIC TAGS: organic synthetic process, polystyrene, ion exchange membrane

ABSTRACT: Water-soluble polymeric bases were prepared by chloromethylation of polystyrene or polyvinyltoluene with subsequent amination. Polystyrene, suspension polystyrene or suspension polyvinyltoluene (270,000, 26,000, or 55,000 molecular weight, respectively) was dissolved in an excess of monochloromethyl methyl ether,  $ZnCl_2$  was then added, and the reaction mixture was kept on a steam bath until chloromethylation ceased. Chloromethylated polymer was extracted by aqueous dioxane and then mixed with 70% methanol. The fine precipitation formed was separated on a glass-sintered filter, washed with distilled water to negative chlorine reaction, and dried at room temperature. Chloromethylation of suspension polystyrene (26,000) or polyvinyltoluene (55,000) gave a 85-95% yield, and chloromethylation of polystyrene (270,000) gave a 54-60% yield. The optimal conditions of chloromethylation were: 1:8 ratio of polymer:

Card 1/2

UDC: 661.183.123-416

L 39706-66

ACC NR: AF6007975

chloromethyl methyl ether, presence of 12% (of polymer weight)  $ZnCl_2$ , 50C temperature, and 12 hr of reaction duration. By amination of a chloromethylated polymer with 100% molar excess of trimethylamine or pyridine in dioxane at 40C for 6-8 hr, a 74.2-96.4% yield of the corresponding quarternary ammonium or pyridinium basis was obtained. The reaction mixture was diluted with water until a clear solution formed, the excess of amine, dioxane, and water was distilled off by suction at 40-45C, then the polymeric base solution obtained was passed through a 50V-3 cation-exchange column. The specific viscosity of the solutions of polyelectrolyte (polymeric base) obtained ( $\eta/c$ ) was a linear function of  $c$  ( $c$  = concentration in g/100 ml). To obtain ion-exchange membranes, aqueous solutions of vinyl alcohol and polyelectrolyte in the presence of 2% glycerine were mixed and delivered into a glass mold (cuvette). The films formed were dried for 2 hr at 80-100C and then regenerated with 4% NaOH and washed with distilled water to a neutral reaction. Their capacity was determined by 0.1 N HCl. Membranes kept for 20 hr at 120-140C were most stable, did not change their ion-exchange capacity by few regenerations, and had good physicochemical and electrochemical properties. All the membranes obtained had 1-2 ohm·cm<sup>2</sup> surface resistivity and 1-1.2 mg-equivalent/g ion-exchange capacity. A. S. Gusarova participated in the experimental part of this work. Orig. art. has: 3 fig. and 3 tables.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 007

Card 2/2 *gd*

L 37215-66 EWP(j)/EWT(m)/T IJP(c) RM/WW

ACC NR: AP6018127

(A)

SOURCE CODE: UR/0191/66/000/006/0040/0042

AUTHOR: Kovarskaya, B. M.; Kolesnikov, G. S.; Levantovskaya, I. I.;  
Smirnova, O. V.; Drakyuk, G. V.; Poletakhina, L. S.; Korovina, Ye. V.

41  
B

ORG: none

TITLE: Thermo-oxidative degradation of polycarbonates

SOURCE: Plasticheskiye massy, no. 6, 1966, 40-42

TOPIC TAGS: polycarbonate plastic, heat resistance, oxidative degradation, oxidation kinetics, reaction mechanism

ABSTRACT: Polycarbonates, molecular weight of about 30,000, based on 2,2-di-(4-hydroxyphenyl)-propane (PK-1), on 1,1-di-(4-hydroxyphenyl)-cyclohexane (PK-2) and on di-(4-hydroxyphenyl)-phenylmethane (PK-3) were subjected to thermal oxidation in vacuum. Kinetic curves of the thermal oxidations showed PK-1 was most stable and PK-3 the least stable. Energies of activation for the oxidations were calculated: 21.0, 17.6 and 13.0 kcal/mol, respectively. Reaction mechanisms are discussed. Auto-accelerated processes are indicated in the initial period of thermal oxidation of PK-1 and PK-2. Radical-chain oxidation

Card 1/2

UDC: 678.674'41'5.01:620.192.424

L 37215-66

ACC NR: AP6018127

mechanisms are indicated for all three materials. It is concluded that polycarbonates with increased resistance to thermal oxidation should contain a minimum number of "aliphatic" hydrogen atoms in the main polymer chain and the bisphenols with aliphatic carbon atoms bonded to hydrogen. Orig. art. has: 3 figures, 6 equations and 2 formulas.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 002

Card 2/2

L 27315-66 ENT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6008972

(A)

SOURCE CODE: UR/0190/65/007/011/1913/1915

AUTHORS: Kolesnikov, G. S.; Tevlina, A. S.; Alovitdinov, A. B.

34

G. S. Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut)

13

TITLE: Copolymerization of  $\alpha$ -phenylvinylphosphonic acid with methyl methacrylate and methacrylic acid 57th communication in the series: Carbocyclic polymers and copolymers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 11, 1965, 1913-1915

TOPIC TAGS: copolymer, methyl methacrylate, methanol, polymerization

ABSTRACT: This investigation was conducted to extend the work of G. S. Kolesnikov, A. S. Tevlina, and A. B. Alovitdinov (Vysokomolek. soyed., 7, 1818, 1965). It was desired to determine the molecular composition and the monomer reactivity ratios for the copolymerization of  $\alpha$ -phenylvinylphosphonic acid - methylmethacrylate and  $\alpha$ -phenylvinylphosphonic acid - methacrylic acid. The reactions were carried out at  $80 \pm 0.2^\circ\text{C}$  in the presence of 1 mol.% benzoyl peroxide in an atmosphere of nitrogen. The experimental results are presented in graphs and tables (see Fig. 1).

2

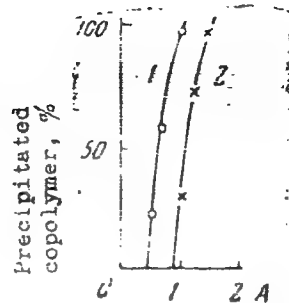
Card 1/2

UDC: 66.095.26+678.744+678.8

L 27315-66

ACC NR: AP6008972

Fig. 1. Dependence of the quantity of precipitated copolymer --  $\alpha$ -phenylvinylphosphinic acid, methylmethacrylate (in % of initial quantity) on the volume ratio precipitating agent: solvent (A). 1 -- solvent - methanol, precipitating agent - water; 2 -- solvent - methylethylketone, precipitating agent -- n-octane.



The monomer reactivity ratios for the systems investigated were found to be:  $\alpha$ -phenylvinylphosphinic acid - methylmethacrylate  $r_1 = 0.06 \pm 0.04$ ,  $r_2 = 3.30 \pm 0.2$ , and for  $\alpha$ -phenylvinylphosphinic acid - methacrylic acid  $r_1 = 0.36 \pm 0.12$ ,  $r_2 = 3.50$ .

Orig. art. has: 2 tables and 2 graphs.

SUB CODE: 11/ SUBM DATE: 10Dec64/ ORIG REF: 003/ OTH REF: 004

Card 2/2 -

I 30994-66 EWT(m)/ETL(f)/EWP(j)/T/ENG(m) RPL DS/AN/RM  
 ACC NR: AP6002471 (A) SOURCE CODE: UR/0191/66/000/001/0006/0008

AUTHORS: Kolesnikov, G. S.; Tavlina, A. S.; Chuchin, A. Ye.; Baraboshkina, I. A.

ORG: none

TITLE: Graft copolymers of styrene-divinylbenzene-polyarylene ethyl and styrene-divinylbenzene-polyarylene ethyl hydroperoxide

SOURCE: Plasticheskiye massy, no. 1, 1966, 6-8

TOPIC TAGS: graft copolymer, chain reaction, polymerization, polymer, polymer chemistry, polystyrene

ABSTRACT: Graft copolymerization styrene-divinylbenzene-polyaryl-ethyl and styrene-divinylbenzene-polyarylethyl hydroperoxide were studied to investigate the possibility of synthesizing large-pore sulfo-cation-exchangers on the basis of three-dimensional graft-copolymers. The copolymers were synthesized by two methods: 1) by grafting styrene to a polymeric hydroperoxide as described by the authors (Vysokomolek, soyed., 7, 10, 1753, 1965), and 2) by chain transfer via the mobile hydrogen atom of polyarylene ethyl in the presence of a free radical initiator. The degree of swelling in benzene solution, the molecular weight distribution, the ion absorption capacity, and the amount of hydroperoxide in the synthesized polymers were determined. The experimental results are presented in graphs and tables (see Fig. 1). It was found that the synthesized sulfo-cation-exchangers were able to

Card 1/2 UDC: 678.746.22-134.6



L 30994-66

ACC NR: AP6002471

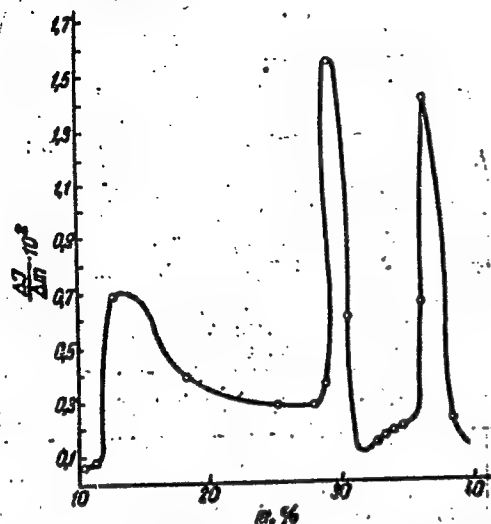


Fig. 1. Molecular weight distribution determined by turbidometric titration of dioxane solution of the products of polymerizing styrene in the presence of polyarylethyl.

sorb large organic ions. The sorption of low molecular weight ions was more complete than of higher molecular weight ions. Orig. art. has: 3 tables and 4 graphs.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 001

Card 2/2 LC

L 32809-66 ENT(m)/EMP(j)/T IJP(c) EW/JW/JWD/RM  
ACC NR:AP6015051 (A) SOURCE CODE: UR/0190/66/008/005/0870/0875

AUTHOR: Yaralov, L. K.; Kolesnikov, G. S.

ORG: Institute of Organoelemental Compounds, AN SSSR (Institut elementoorganicheskikh soedineniy AN SSSR); Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Synthesis and properties of polyacrylonitrile and polyoxyananth block copolymer

SOURCE: Vysokomolekulyarnyye soedineniya, v. 8, no. 5, 1966, 870-875

TOPIC TAGS: block copolymer, polyacrylonitrile, polyoxyananth

ABSTRACT: Heterochain block copolymers with polyoxenanth and polyacrylonitrile blocks have been prepared for an investigation of their synthesis and properties. The polyoxyananth with terminal peracidic groups served as a macroinitiator. The block copolymer properties were analyzed in the solution and in the condensed state. The introduction of polyoxyananth into the chain decreases the softening temperature of the polyacrylonitrile. Orig. art. has: 1 figure and 4 tables. [NT]

SUB CODE: 11, 07/ SUBM DATE: 07May65/ ORIG REF: 007/ OTH REF: 001  
UDC: 514.64+678.13+678.674+678.745

Card 1/1 mgs

L 30388-66 EWP(j)/EWT(m)/T IJP(c) RM

ACC NR: AP6019548

SOURCE CODE: UR/0190/66/008/006/1135/1135

AUTHOR: Kolesnikov, G. S.; Fedotova, O. Ya.; Matvelashvili, G. S.

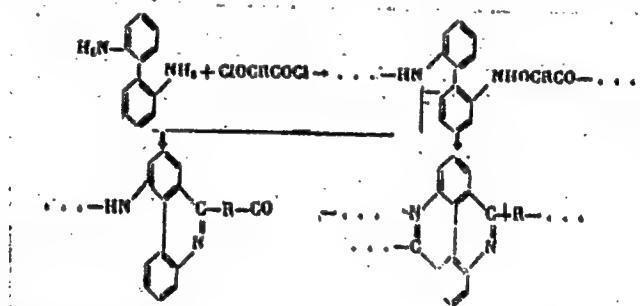
ORG: none

TITLE: Polyphenanthridinylamides and polydiazapyrenylenealkyls (aryls)

SOURCE: *Vysokomolekulyarnyye soyedineniya*, v. 8, no. 6, 1966, 1135

TOPIC TAGS: synthetic material, polyamide, ~~cyclodehydration~~, ~~polyphenanthridinylamide~~, ~~polydiazapyrenylenealkyl~~, ~~polydiazapyrenylenearyl~~, **DIPHENYL COMPOUND, ALIPHATIC DICARBOXYLIC ACID, DEHYDRATION**

ABSTRACT: The authors have synthesized new polymers with phenanthridine or diazapyrene rings in the backbone:



Card 1/2

UDC: 541.64+678.675

L 30388-66

ACC NR: AP6019548

The polymers were prepared by cyclodehydration (by heating with  $\text{POCl}_3$ ) of polyamides made by reacting 2,2'-diphenyldiamine with aliphatic or aromatic dicarboxylic acid chlorides. The presence of phenanthridine and diazapyrene rings in the polymers was established by IR spectroscopy. Cyclodehydration of the polyimides increased the softening temperature of the polymers, e.g., the softening temperature of polyamide based on 2,2'-biphenyldiamine and terephthalic acid was 190—200C, but that of the product of its cyclodehydration was 250—260C. Further study of the cyclodehydration reaction of polyamides and of the properties of the new polymers is in progress. 1  
Orig. art. has: 1 formula. [B0]

SUB CODE: 07, 11/ SUBM DATE: 23Dec65/ ATD PRESS: 5017

Card 2/2 CC

L 23289-66 EWT(m)/ETC(f)/EWG(m) DS/RM

SOURCE CODE: UR/0108/65/008/007/0297/0301

Author: A. S. Tsvetkov, A. S. Alievskiy, A. S. Anzha, G. A. ...  
Institute of Chemical Technology im. D. I. Mendeleev (Moscow)  
Khimicheskii Institut

**Subject:** Synthesis of homogeneous ion exchange membranes by grafting  $\alpha$ -phenyl-vinyl phosphonic acid to water-insoluble films of polyvinyl alcohol (60th report in the series "Aliphatic polymers and copolymers")

**Keywords:** Vysokomolekulyarnyye soyedineniya, v. 8, no. 2, 1966, 297-301

**Topic TAGS:** graft copolymer, ion exchange membrane, polyvinyl alcohol

**ABSTRACT:** Graft copolymerization of  $\alpha$ -phenylvinyl phosphonic acid (I) to cross-linked water-insoluble films of polyvinyl alcohol (II) was investigated in the hope of obtaining ion exchange membranes with a uniform distribution of ionogenic groups. Copolymerization was performed with a variety of redox systems: 1)  $\text{Ce}^{4+}$  - II, 2) potassium persulfate - II, 3) potassium persulfate-potassium thiosulfate. Initiation takes place by formation of a macroradical which acts as a reducing agent. Systems I and II cross-linked thermally in the presence of I gave the best results. The exchange capacity (SEC) of the graft copolymers as a function of the content of I is illustrated in Figs. 1a and b. The cation exchange membranes thus produced possess satisfactory physical, mechanical, and electrochemical properties.

Card 1/2

UDC: 541.64+678.744+678.86

L 23289-66

ACC NR: AP6006983

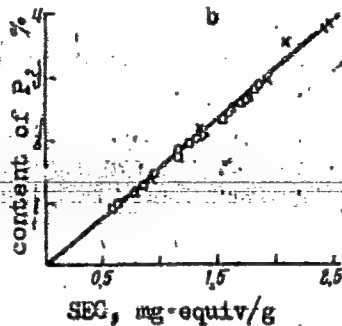
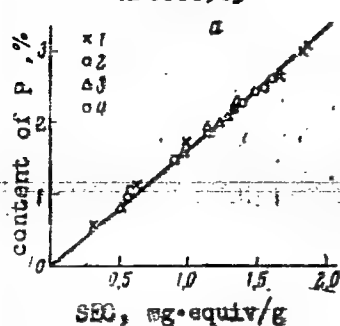


Fig. 1. SEC of graft copolymers as functions of P content: a - reaction conducted in aqueous medium, b - reaction conducted in aqueous-methanolic medium (1:1). Films cross-linked; 1 - thermally in the presence of I, 2 - with epichlorohydrin, 3 - thermally, 4 - with formaldehyde.

Orig. art. has: 3 tables and 2 figures.

SUB CODE: 07/

SUBM DATE: 19Mar65/

ORIG REF: 004/

OTH REF: 004

Card 2/2 *iv*

L 24489-66 EWT(m)/EWP(f)/T/ETC(m)-6 IJP(c) WW/RM  
 ACC NR: AP6006984 (A) SOURCE CODE: UR/0190/66/008/002/0302/0307

AUTHORS: Smirnova, O. V.; Kolesnikov, G. S.; Vlasova, M. A.; Ledneva, O. A. 53  
 50

Moscow Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy  
 Khimicheskiy Institut) B

TITLE: Synthesis and study of the properties of polyurethane carbonate based on  
 4-(4-methyl-4-hydroxyphenyl)isopropyl/-2-methylphenyl ester of hexamethylene  
 1. carbamic acid and phosgene

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 2, 1966, 302-307

TOPIC TAGS: organic synthetic process, polycarbonate plastic, thermomechanical  
 property/ PKU-2 polyurethane plastic

ABSTRACT: Synthesis and properties of polyurethane carbonate PKU-2 (I) based on  
 4-(4-methyl-4-hydroxyphenyl)isopropyl/-2-methyl ester of hexamethylene  
 1. carbamic acid (II) and phosgene (III) are described. The material, having a  
 molecular weight of 20 000 and an elementary unit represented by the formula

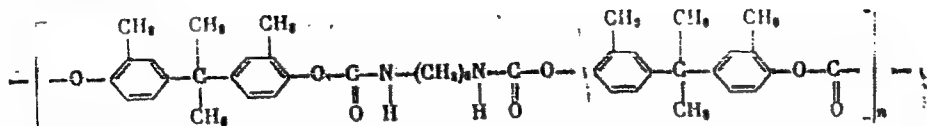
Card 1/3

UDC: 541.64+678.674 2

L 24489-66

ACC NR: AP6006984

3



was of interest as it was expected to combine the excellent mechanical properties of polycarbonates with higher elasticity and alkali resistance. Compound II has been synthesized for the first time, by reacting 2,2-di-(4-methyl-4-hydroxyphenyl)propane with hexamethylene diisocyanate. I was prepared by interphase polycondensation in suspension. Study of the yield and viscosity of the product as functions of the reaction conditions is summarized graphically. Optimal concentration of reagents was found to be 0.2 mol/l. Phosgenation repeated three times increased the yield from 15 to 45%. Comparison of the thermomechanical properties of I with those of the homopolycarbonate is illustrated in Fig. 1. The product was resistant to alkaline hydrolysis and to organic solvents.



L 24489-66  
A.D. M. AP6006984

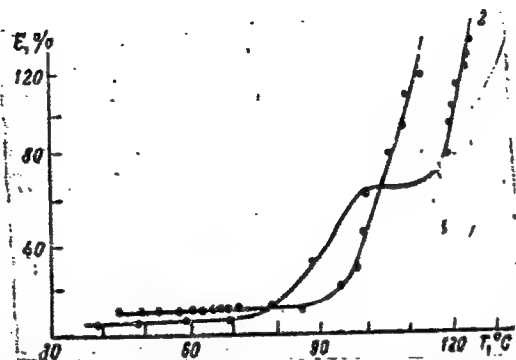


Fig. 1. Thermomechanical curves:  
1 - homopolycarbonate, 2 - PKU-2.

Orig. art. has: 3 figures.

SUB CODE: 07/ SUBM DATE: 19Mar65/ ORIG REF: 003

Card 3/3

2B

L 27821-66	EWI(m)/EWP(j)/I	IJP(c)	RM/WM
ACC NR. AP6012712	(A)	SOURCE CODE: UR/0190/66/008/004/0674/0680	
AUTHOR: Kolesnikov, G. S.; Yaratov, L. K.			
USSR Academy of Sciences Institute of Chemical Technology im. D. I. Mendeleev (Moskovskiy Institut elementoorganicheskikh soedineniy AN SSSR			
TITLE: Synthesis of <u>block copolymers</u> using <u>parachlorostyrene</u> polymerization in the presence of a polyhydroxyenante with a terminal peracid group			
SOURCE: Vysokomolekulyarnyye soedineniya, v. 8, no. 4, 1966, 674-680			
TOPIC TAGS: block copolymer, polymerization initiator, polymerization			
ABSTRACT: Heterocarbochain block copolymers consisting of a polyhydroxyenant and poly-p-chloro-styrene were synthesized. A peroxide derivative of a polyester of polyenanthic acid was used as the polymerization initiator. Solution and solid state properties of the products obtained were analyzed. The presence of the polyester block in the block copolymer gives a plasticizing effect, thus increasing the tensile strength and elongation. Orig. art. has: 2 figures and 5 tables. [Based on authors' abstract.] [NT]			
SUB CODE: 11, 07/ SUBM DATE: 21Apr65/ ORIG REF: 003/ OTH REF: 001/			
Card 1/1		UDC: 66.095.26+678.674+678.74	

L 44287-66 EWT(m)/EMP(j)/T IJP(c) WW/RM

ACC NR: AP6011235 (A) SOURCE CODE: UR/0413/66/000/006/0075/0075

INVENTOR: Kolesnikov, G. S. ; Rodionova, Ye. F. ; Levin, B. B. ; Fetin, I. N. <sup>39</sup>  
B

ORG: none

TITLE: Method of obtaining phosphorus-containing copolymers.<sup>1</sup> Class 39,  
No. 179922 /  
12

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 75

TOPIC TAGS: copolymer, copolymerization, styrene, organic phosphorus  
compound

ABSTRACT: An Author Certificate has been issued for a method of obtaining  
phosphorus-containing copolymers by copolymerization of styrene with unsaturated  
organophosphorus compounds in block or solution at temperatures of 50 to 120C in  
the presence of a dinitrile azoizobutyric acid as the initiator. To increase the  
variety of unsaturated organophosphorus compounds,  $\alpha$ -phenyvinylphosphinic acid  
is used as the initiator. [NT]

SUB CODE: 11/07/SUBM DATE: 18Jun63/

Card 1/1

UDC: 678.85:678.746.22.547.341

L 22536-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

(A)

SOURCE CODE: 06.09.26/66/008/003/0536/0539

Author: Fedotova, O. Ya.; Khoang Kim Tyung; Kozyreva, N. M.; Kolesnikov, G. S.

Address: Moscow Chemical and Technological Institute im. D. I. Mendeleev (Moskovskiy Khimiko-Tekhnologicheskii Institut)

TITLE: Copolymerization of unsaturated polyamides with styrene

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 3, 1966, 536-539

TOPIC TAGS: copolymerization, polyamide, styrene, polymerization accelerator, polymerization inhibitor

ABSTRACT: A study has been made of copolymerization of poly-3,3'-dimethyldiphenyl-terephthalamide-N, N'-diethylamide of different molecular weights styrene in the presence of benzoylperoxycarbonate and accelerators (cobalt naphtenate and dimethyl-terephthalamide). Thermal NRH-groups in polyamide inhibit copolymerization at a concentration higher than that corresponding to the expenditure of HCl of 2-3 mg/g required for neutralization. The copolymer strength and hardness greatly depend on the molecular weight of the initial polyamide and on the quantity of styrene introduced. The work contains: 3 figures and 2 tables. [Based on authors' abstract.] [NT]

SUB CODE: 07/ SUBM DATE: 15Apr65/ ORIG REF: 001/

Card 1/1

UDC: 66.095.26+678.01:54+678.13+678.675

L 22538-66 EWT(m)/EWP(j)/T IJP(c) WW/RM  
 (A) SOURCE CODE: TF 120/66/008/003/0513,0513

AUTHOR: Kolesnikov, G. S.; Yaralov, L. K.

4/8

ORG: Moscow Chemical and Technological Institute im. D. I. Mendeleev (Moskovskiy Khimiko-Tekhnologicheskii Institut); Institute of Organelemental Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Polymerization of styrene initiated with polyoxyenanath containing terminal  
peroxy groups and resulting in block copolymer formation

SOV. J. Wysokomolekulyarnyye soyedineniya, v. 8, no. 3, 1966, 513-518

TOPIC TAGS: styrene, block copolymer, polystyrene, polymerization, thermal decomposition, polymerization initiator

ABSTRACT: Heterocarbochain block copolymers consisting of polystyrene and  $\omega$ -oxyenanthic acid polyester blocks have been prepared. Radical styrene polymerization with macroradicals was initiated during the thermal decomposition of the terminal peracidic groups in synthesized polyenanath. Properties of the prepared copolymers were analyzed in solution and in condensed state. It was shown that the polyester block in the copolymer has a plasticizing effect on the polystyrene block and imparts to it the properties of modified polystyrene. Orig. art. has: 3 figures and 5 tables. [Based on authors' abstract.] [NT]

SUB CODE: 07/ SUBM DATE: 10Apr65/ ORIG REF: 006/ OTH REF: 001/  
 Card 1/1 UDC: 66.095.26+678.13+678.674+678.746

2

L 12723-66 EWP(j)/EWT(m)/T RM/WW

1000427

(A)

SOURCE CODE: 01/01/001/0153/0156

Kolesnikov, G. S.; Chuchin, A. Ye.; Boyev, B. I.

44

Chemical-Technological Institute im. D. I. Mendeleev (Moskovskiy  
khimiko-tekhnologicheskii institut)

Polymerization of 1,2-dichloroethane with cumene and dibenzyl

Vysokomolekulyarnyye soyedineniya, v. 2, no. 1, 1966, 153-156

polycondensation, copolymerization, viscosimeter, molecular weight,

ethane

Process of copolycondensation of dichloroethane (I) with cumene (II) and dibenzyl (III) in the presence of aluminum chloride (IV), and the effect of the components upon molecular weight and yield of the polymer were studied. The method of polycondensation was described by G. S. Kolesnikov and A. Ye. Chuchin in an earlier report (Vysokomolek. soyed., 7, 1753, 1965). Molecular weights of the polyarylenethylenes were determined viscometrically using the Staudinger-Mark equation,  $[\eta] = 17 \times 10^{-4} M^{0.429}$ . In that series of experiments the amounts of II and III were varied, mainly their molar ratio 1:1, with the amounts of I and IV, the temperature,

UDC: 641.64-678.746

2

L 18418-66 EWT(m)/EWP(3)/T JW/RH  
 No. AP6003426

SOURCE: ... 19146/0152

AUTHORS: Smirnova, O. V.; Kolesnikov, G. S.; Vlasova, V. A.; Nadir, P. K. 37

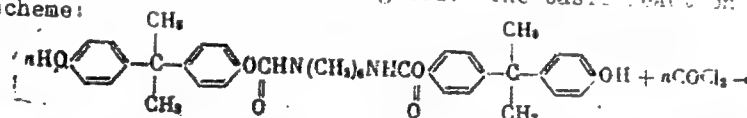
Moscow Institute of Chemical Engineering im. D. I. Mendeleev (Moskovskiy khimiko-tekhnologicheskii institut)

TITLE: Synthesis and investigation of the properties of polyurethane carbonate 7  
 based on 4-[2-(4-hydroxyphenyl)isopropyl]-phenyl ester of hexamethylene dicarbamic acid and phosgene 1

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 1, 1966, 146-152

TOPIC TAGS: polyurethane, polycondensation, phosgene, polymer structure

ABSTRACT: The effect of reagent concentration, excess of alkali and phosgene, presence of emulsifiers, and number of phosgenations at different concentration of 4-[2-(4-hydroxyphenyl)isopropyl]-phenyl ester of hexamethylene dicarbamic acid and phosgene has been investigated. The basic reaction proceeds according to the scheme:

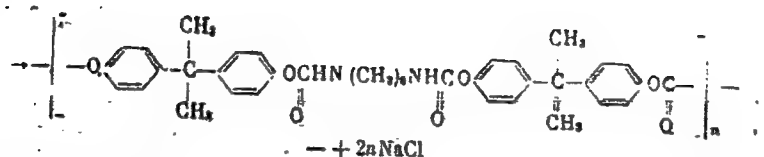


Card 1/2

UDC: 678.01:53+678.664+678.674 2

L 18418-66

ACC NR: AP6003426



yielding polyurethane carbonate (I). It was established that the highest values for reduced viscosity (0.42) and highest yield of I (40%) are obtained with the reagent concentration of 0.4 mole/l and at 40% excess of phosgene. Five phosgenations yielded 65% of I having  $\eta_{sp}/c = 1.2$ . Its physical and chemical properties were determined. (I) was remarkably inert to alkaline hydrolysis and to organic solvents. Orig. art. has: 2 tables, 5 figures, and 1 equation.

SUB CODE: 07/ SUBM DATE: 04Mar65/ ORIG REF: 001/ OTH REF: 004

Card 2/2 *pa*



L 20867-66 EWP(j)/ENT(m)/ETC(f)/ENG(m)/T RM/DS/NW  
ACC NR: AP6005946 (A) SOURCE CODE: UR/0191/66/000/002/0012/0013

AUTHORS: Kolesnikov, G. S.; Teylina, A. S.; Alovitdinov, A. B.

ORG: none

TITLE: Synthesis of ion exchange resins by copolymerizing  $\alpha$ -phenylvinylphosphinic acid with  $\alpha$ -methylmethacrylate and methacrylic acid by means of suspension polymerization

SOURCE: Plasticheskiye massy, no. 2, 1966, 12-13

TOPIC TAGS: copolymerization, ion exchange resin, methacrylate plastic, phosphinic acid, methylmethacrylate

ABSTRACT: Suspension copolymerization of  $\alpha$ -phenylvinylphosphinic acid (I) with methylmethacrylate (II) and with methacrylic acid (III) has been investigated in the presence and absence of divinylbenzene (IV), at varying ratios of reagents, to obtain optimal conditions for production of copolymer with the maximal number of I residues. The obtained results were applied to the synthesis of cationic exchange resins. Optimal amount of IV for reaction of I and II was 2% by weight, and for reaction of I with III -- 8% by weight of the total reaction mixture. Synthesis of ion exchange resins with the use of monomers containing ionogenic groups assures

Card 1/2

UDC: 661.183.123

L 20807-66

ACC NR: AP6005946

more uniform distribution of these groups in the polymeric structure. Static exchange capacity of resins produced is 4--4.5 mg equiv/g of 0.1N KOH. The resins possess high mechanical durability and are stable to heating at 150C. Spherical shape of the granules is preserved after repeated usage. Sorption and desorption of ceric ions by the exchange resin were investigated. The authors express their gratitude to B. B. Levin and to their co-workers in synthesizing of I. Orig. art. has: 2 tables and 1 figure.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

Card 2/2

(A) L 11138-66 EWT(m)/EWP(j)/T/ETC(m) RPL WW/RM

ACC NR. AP6002550 SOURCE CODE: UR/0286/65/000/023/0047/0047

INVENTOR: Levin, B. B.; Kolesnikov, G. S.; Rodionova, Ye. F.; Fetin, I. N.

ORG: none

TITLE: Preparation of acrylic or methacrylic acid copolymers. Class 39, No. 176682

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 47

TOPIC TAGS: copolymer, acrylic acid, methacrylic acid, heat resistant material, fire resistant material

ABSTRACT: An Author Certificate has been issued for a preparative method for copolymers of acrylic or methacrylic acid with vinyl monomers. The method involves bulk or solution copolymerization at 50—100C in the presence of azobisisobutyronitrile. To improve the heat- and fire-resistance of the polymer, ( $\alpha$ -phenylvinyl)phosphonic acid is used as the vinyl monomer. [B0]

SUB CODE: 07, 11/ SUBM DATE: 17Jul63/ ATD PRESS: 4173

Card 1/1 UDC: 678.744.322.13

**A** I 5222-66 <sup>44.5</sup> B/T(m)/EhP(j)/T RM  
 ACC NR: <sup>44.5</sup> P5000984 SOURCE CODE: <sup>44.5</sup> UR/0286/65/000/022/0059/0059

INVENTOR: <sup>44.5</sup> Plate, N. A.; <sup>44.5</sup> Mal'tsev, V. V.; <sup>44.5</sup> Kolesnikov, G. S.; <sup>44.5</sup> Davydova, S. L. <sup>44.5</sup> 49

TITLE: <sup>1</sup> Preparation of organotin and organogermanium polymers. Class 39, No. 176408 <sup>B</sup>

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 59

TOPIC TAGS: organotin compound, organogermanium compound, <sup>44.5</sup> polymer, catalytic polymerization, lithium compound

ABSTRACT: An Author Certificate has been issued for a preparative method for organotin or organogermanium polymers with enhanced heat resistance. The method involves polymerization of tin or germanium vinyl derivatives with organotin catalyst. [80]

REF CODE: 07/ SUBM DATE: 18Sep63/ ATD PRESS: <sup>44.5</sup> 4158

Card <sup>44.5</sup> UDC: 678.745.7

L 7888-66 EWT(m)/EPF(c)/EWP(j) RM

ACC NR: AP5025043

SOURCE CODE: UR/0286/65/000/016/0085/0085

AUTHORS: Kolesnikov, G. S.; Tevlina, A. S.; Novikova, S. P.; Alovitdinov, A. B.; Levin, B. B.; Trunina, G. I.

ORG: none

TITLE: Method for obtaining poly- $\alpha$ -phenylvinylphosphonic acid. Class 39, No. 173955 /announced by Moscow Order of Lenin Chemicalo-technological Institute im. D. M. Pletskov (Moskovskiy khimiko-tehnologicheskij Institut)

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 85

TOPIC TAGS: phenylvinylphosphonic acid, polymer, organic phosphorus compound, cerium compound, alcohol

ABSTRACT: This Author Certificate presents a method for obtaining poly- $\alpha$ -phenylvinylphosphonic acid. The  $\alpha$ -phenylvinylphosphonic acid is polymerized in an aqueous solution in the presence of redox initiators such as salts of tetravalent cerium and polyvinyl alcohol.

SUB CODE: 07/ SUBM DATE: 08May64

Card 1/1

UDC: 678.746.87

L 3554-66 EWT(m)/EPF(c)/EWP(j)/T/ETC(m) RPL W3/RM

ACCESSION NR: AP5024400

UR/0286/65/000/015/0081/0081

Author: Levin, B. B.; Kolesnikov, G. S.; Rodionova, Ye. P.; Fetin, I. N.

Title: A method for obtaining copolymers of vinylpyrrolidone (vinylpyridine).  
Class 12, No. 173408

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 81

TOPIC TAGS: copolymer, vinylpyridine, monomer, copolymerization

ABSTRACT: This Author Certificate presents a method for obtaining copolymers of vinylpyrrolidone (vinylpyridine) with a vinyl monomer by copolymerizing appropriate monomers in a block or in a solution at the temperature of 50-100C in the presence of azoisobutyric dinitrile initiator. To increase the heat and fire resistance of the polymer,  $\alpha$ -phenylvinylphosphinic acid is used as vinyl monomer.

ASSOCIATION: none

SUBMITTED: 11Nov63

ENCL: 00

SUB CODE: 00, 4C

NO REF SOV: 000

OTHER: 000

Card 1/1

AP5017838  
UR/0286/65/000/011/0077/0077  
678.742-13.674.002.2

Yakov, G. S.; Yaralov, L. K.

for producing block copolymers with a carbobeterogeneous chain.

1552  
Izobreteniy i tovarnykh znakov, no. 11, 1985, 11

copolymer, radical polymerization, heterobifunctional monomer

Author's Certificate introduces a method for producing block copolymers with a carbobeterogeneous chain. A wider selection of polymer materials is obtained by radical polymerization of a vinyl monomer in the presence of a macroinitiator in the form of a polyester with peracid end group.

SUBMITTED 00000000

ENCL: 00

CC, CC

NO REF SOV: 000

OTHER: 000

A 1 11523-66 EWT(m)/EWP(j)/T RPL WW/RM  
 ACC NO. AP0001874 SOURCE CODE: UTM190/65/007/012/2165/2167  
 AUTHORS: Sividova, S. N.; Avetisyan, A. A.; Kolesnikov, G. S.; Sidel'kovskaya, P. P.; Pavlina, A. S.  
 ORG: Moscow Chemical-Technological Institute im. Mendeleev (Moskovskiy khimiko-  
 tekhnologicheskii institut); Institute for Organic Chemistry, AN SSSR (Institut  
 organicheskoy khimii AN SSSR)  
 TITLE: Copolymerization of N-vinylthiopyrrolidone with methylmethacrylate and  
 N-vinylpyrrolidone. 75th communication from the series, "Carbor chain polymers and  
 copolymers"  
 SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 12, 1965, 2164-2167  
 TOPIC TAGS: polymer, polymerization, copolymerization, methylmethacrylate,  
 polymerization kinetics  
 ABSTRACT: Data on the monomer N-vinylthiopyrrolidone (VTP), recently synthesized  
 by M. S. Shostakovskiy, P. P. Sidel'kovskaya, M. G. Zelenskaya, A. A. Avetisyan, and  
 S. V. Lopatin (Dokl. AN SSSR, 153, 1089, 1963), were extended by copolymerizing (VTP)  
 with methylmethacrylate and N-vinylpyrrolidone (VP). The copolymerization was  
 carried out at 60°C in presence of 1 mole % of initiator, and the copolymerization  
 constants of VTP with methyl methacrylate were found to be:  $r_2 = 1.72 \pm 0.09$  and  $r_1 =$   
 Card 1/2 UDC: 66.095.26+678.744+678.746



L 11523-66

ACC NR: AP6001874

$0.44 \pm 0.06$ ,  $Q_2 = 1.36$  and  $e_2 = -0.12$ . The corresponding constants for the copolymerization of VTP with VP were found to be:  $r_2 = 1.50 \pm 0.30$ ,  $r_1 = 0.13 \pm 0.02$ ,  $Q_2 = 1.61$  and  $e_2 = -0.10$ . The solubility in a number of solvents, the specific viscosity of one g/liter solutions of the polymers in dichloroethane, and the tensile strength of the polymers were determined. The experimental results are presented in tables and graphs (see Fig. 1).

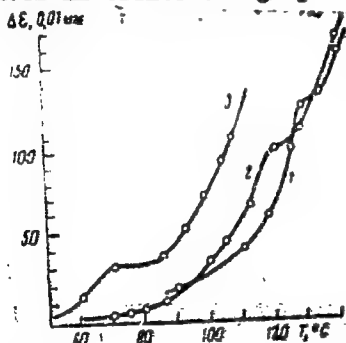


Fig. 1. Thermomechanical properties of the copolymers. (Applied stress 6 kg/cm<sup>2</sup>). 1 - VTP and methylmethacrylate in 1:1 mole ratio; 2 - the same copolymer, mole ratio 4:1; 3 - VTP and VP, mole ratio 4:1.

Orig. art. has: 5 tables and 2 graphs.

SUB CODE: 01,11/ SUBM DATE: 02Feb65/ ORIG REF: 003/ OTH REF: 004

Card 2/2

SWT(m)/SWP(j)/T RPL

APR 001873

SOURCE CODE: UR/0190/65/007/012/2160/2163

44,58 47,5 49  
AUTHORS: Kolesnikov, G. S.; Tevlina, A. S.; Novikova, S. P.; Sividova, S. N. 49

49  
Moscow Chemical-Technological Institute im. D. I. Mendeleev (Moskovskiy Khimiko-Tekhnologicheskii Institut)

7,49 9 7  
TITLE: Copolymerization of  $\alpha$ -phenylvinylphosphonic acid with acrylic acid and acrylonitrile. 53th communication in the series Carboxylic Polymers and Copolymers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 12, 1965, 2160-2163

TOPIC TAGS: polymer, polymerization, ~~polymerisation rate, polymerization kinetics,~~  
copolymerization, acrylic acid, acrylic plastic *phosphonic acid*

ABSTRACT: The copolymerization of  $\alpha$ -phenylvinylphosphonic acid with acrylic acid and acrylonitrile was studied as an extension of previously published work on the polymerization properties of  $\alpha$ -phenylvinylphosphonic acid by G. S. Kolesnikov, A. S. Tevlina, and A. B. Alovitdinov (Vysokomolek. soyed., 7, 1913, 1965). The copolymerization was carried out in evacuated glass tubes in the presence of mole %  $\alpha$ -phenylvinylphosphonic acid at 70°C. The experimental results are presented in tables and Fig. 1). The copolymerization constants,  $r$  for the systems,  $\alpha$ -phenylvinylphosphonic acid - acrylic acid, and  $\alpha$ -phenylvinylphosphonic acid and acrylonitrile were calculated and were found to be:  $r_1 = 0.44 \pm 0.03$ ,  $r_2 = 0.98 \pm 0.08$ ,

Card 1/2

UDC: 66.095.26+678.744+678.745+678.86

2

L 11519-66

ACC NR: AP6001873

0

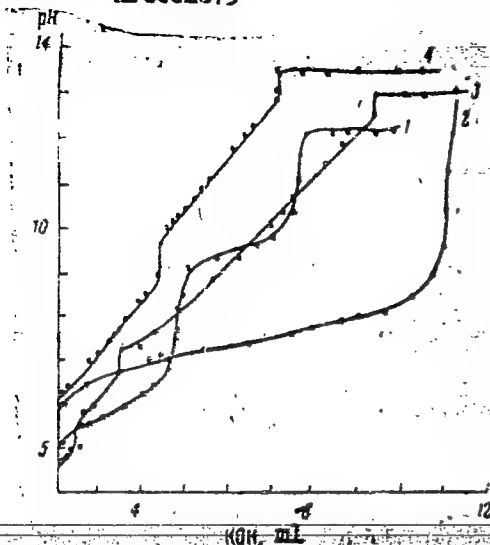


Fig. 1. Potentiometric titration curves.  
1 -  $\alpha$  phenylvinylphosphonic acid (I);  
2 - acrylic acid (II);  
3 - copolymer I - II;  
4 - copolymer I - acrylonitrile.

and  $r_1 = 0.32 \pm 0.07$ ,  $r_2 = 0.69 \pm 0.18$  respectively. The activity parameters  $Q$  and  $e$  for phenylvinylphosphonic acid were found to be  $0.80 \pm 0.02$  and  $0.76 \pm 0.04$  respectively. Orig. art. has: 4 tables and 1 graph.

SUB CODE: 07.11/ SUBM DATE: 02Feb65/ ORIG REF: 003/ OTH REF: 004

Card 2/2

SMIRNOVA, O.V.; FORTUNATOV, O.G.; GARBAR, N.M.; KOLESNIKOV, G.S.

Synthesis and study of polycarbonates prepared by interfacial polycondensation on the basis of di-(4-hydroxyphenyl)phenylmethane. Vysokom. soed. 7 no.11:1989-1992 N '65.

(MIRA 19:1)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D.I. Mendeleeva. Submitted December 31, 1964.

KOLESNIKOV, G.S.; TEVLINA, A.S.; ALOVITDINOV, A.B.

Copolymerization of  $\alpha$ -phenylvinylphosphinic acid with methyl methacrylate and methacrylic acid. Vysokom. soed. 7 no.11: 1913-1915 N '65. (MIRA 19:1)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D.I. Mendeleeva. Submitted December 10, 1964.

L 8863-66 DT(M)/ETC/EWP(J)/EAC(M)/T RPL DS/MM/RM  
 ACC NR: AP5025969 SOURCE CODE: UR/Q190/65/007/010/1618/1621  
 44.53  
 Solosnikov, G. S.; Tevlina, A. S.; Alovitdinov, A. B. 44.53 4  
 7  
 Chemical Technological Institute im. D. I. Mendeloyev  
 Khimiko-tekhnologicheskiy institut)  
 Carbon chain polymers and copolymers. 44.53 Report No. 56.  
 of alpha-phenylvinylphosphinic acid in the presence of  
 cerium ions and polyvinyl alcohol 7

Vysokomolekulyarnyye soyedineniya, v. 7, no. 10, 1965.

TOPIC TAGS: polymerization, copolymerization, phosphinic acid, block copolymer, polymer structure, chelate compound, ion exchange resin

Conditions were found for polymerizing alpha-phenylvinyl-  
 acid to make polymers of interest in ion exchange and for  
 polyvalent metal ions. Polymerization was effected in the  
 of the polyvinyl alcohol-cerium ammonium nitrate oxidation-  
 system, then more tetravalent cerium ion than necessary to  
 the -CHOH of the polyvinyl alcohol was added. The formed  
 gave a polychelate with the tetravalent cerium ion.

UDC: 66.095.26+678.86

L 8863-66

ACC NR: AP5025969

... swells slightly in water, is insoluble in organic solvents;  
... aqueous solutions of mineral acids and alkalis, is stable to  
... and has an ion exchange capacity of 3.8-3.9 mg-equiv/gm.  
... additional spectral data, a network structure is proposed for  
... plate. / Orig. art. has: 1 figure, 5 equations and formulas.

... C, HT/ SUBM DATE: 27 Nov 64 / ORIG REF: 001 / OTH REF:

SVK  
Card 2/2

KOLESNIKOV, G.S.; YARALOV, L.R.

Synthesis and study of carbochain peroxide initiators.  
Vysokom.sosd. 7 no.10:1807-1812 0 '65.

(MIRA 18:11)

1. Moskovskiy khimiko-tekhnologicheskoy institut imeni D.I.  
Mendeleeva i Institut elementorganicheskikh soyedineniy  
AN SSSR.



KOLESNIKOV, G.S.; CHUCHIN, A.Ye.

Preparation of polymeric hydroperoxide and study of the kinetics  
of its decomposition. Vysokom.sped. 7 no.10:1753-1757 0 '65.  
(MIRA 18:11)

1. Moskovskiy khimiko-tsikhologicheskoy institut imeni D.I.  
Mendeleyeva.

EPA(s)-2/EWT(m)/EWP(j) Pc-4/Pt-7 RM

UR/0190/65/007/004/0729/0733

NR: AP5011255

El' Said Ali Khasan; Zolesnikov, O. S.; Smirnova, O. V.; Losev, I. P.

synthesis and study of mixed polycarbonates from 2,2-di-(4-hydroxy-3,5-phenyl) propane

Vysokomolekulyarnyye soedineniya, v. 7, no. 4, 1965, 729-733

organic synthesis, carbonate, propane, electric property, glass

organic synthesis, carbonate, propane, electric property, glass  
transition temperature, ordered structure

Mixed polycarbonates were synthesized from mixtures of 2,2-di-(4-hydroxy-3,5-dichlorophenyl) propane (1), di-(4-hydroxy-3-methylphenyl) methane (2), di-(4-hydroxy-3-methylphenyl) propane (3), 1,1-di-(4-hydroxy-3-methylphenyl)-ethane (4), and di(4-hydroxy-2-methylphenyl)phenylmethane (5). The dielectric and mechanical properties of the resulting polycarbonates were tested and the data tabulated. It was found that only the polycarbonates from (1) + (4) and (1) + (5) in equal molar ratios have high volume resistivity at a voltage of 1000 V. The dielectric constant declines with increase in frequency of the electric field. All of the polycarbonates are very stable in the presence of caustic

NR: AP5011255

Replacement of one unit by another in the polycarbonates is manifested in isomorphic substitution, leading to a steady increase in the glass point with the number of units that contain residue of (1). On heating to temperatures some-  
times above the glass point, the ordering of the polymer is increased. Orig.  
Contains: 2 figures and 5 tables.

...tekhnologicheskii institut im. D. I. Mendeleeva

art. 101: 2 figures and

LOCATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleeva  
(Moscow Chemical Engineering Institute)

SUB CODE: 00, 00

ADMITTED: 01Jul64

ENCL: 00

OTHER: 003.

SECRET SOV: 001

KOLESNIKOV, G.S.; YARALOV, L.K.

Synthesis and study of heterochain polymeric peroxide  
initiators. Vysokom. soed. 7 no.3:551-556 Mr '65.

(MIRA 18:7)

1. Institut elementoorganicheskikh soedineniy AN SSSR i  
Moskovskiy khimiko-tekhnologicheskii institut imeni D.I.  
Mendeleeva.

ACC NR: AR6022898

(A) SOURCE CODE: UR/0081/66/000/005/3043/3043

AUTHOR: Gurgeridze, G. T.; Kolosnikov, G. S.; Fyn-in LA

TITLE: Synthesis of graft copolymers with known mean statistical values of the grafting frequency and length of the side branches

SOURCE: Ref. zh. Khimiya, Part II, Abs. 55256

REF SOURCE: Sb. Issled. v obl. elektrokhimii i radiats. khimii. Tbilisi, Matsniyereba 1965, 102-111

TOPIC TAGS: graft copolymer, methacrylate

ABSTRACT: Copolymers of  $\omega$ -carboxy-n-hexyl methacrylate and N-( $\omega$ -carboxy-n-hexyl)methacrylamide with styrene were prepared, and their reaction with  $\omega$ -hydroxybenzoic and  $\omega$ -hydroxypelargonic acids was used to synthesize carbon heterochain graft copolymers with known mean statistical values of the grafting frequency and length of the side branch. The dependence of the properties of the graft copolymers obtained on the grafting frequency and length of the grafted branches was studied. Authors' abstract. [Translation of abstract].

SUB CODE: 07

Card 1/1

WT(a)/EPF(c)/EPR/EWP(j)/T- Pc-L/Pr-L/PS-L RPL 11/3M  
AP5008358 S/0190/65/007/003/0377/0379

Medonova, Ye. F.; Kolesnikov, G. S.; Gavrilova, L. A.

Reduction-initiated copolymerization of diphenyl vinylphosphinate with

makromolekulyarnyye soyedineniya, v. 7, no. 3, 1965, 377-379

polymer, copolymer, initiator, molecular weight, carbon, phosphorus,  
styrina, dinhenyl vinilfosfinita, reditsiya



~~TOPIC TAGS: polymer, copolymer, initiator, molecular weight, carbon, phosphorus,~~  
~~styrene, diphenyl, vinylphosphinate, sodium compound~~

In this 55th work from the series: "Carbon-chain polymers and copolymerization in emulsion, initiated with an oxido-reducing system, is reported in an effort to produce a high-molecular weight, high-phosphorus copolymer of diphenyl vinylphosphinate (DPVP) with styrene. The method of E. J. Vandenberg and G. E. Hulse (Industr. and Engng. Chem., 40, 932, 1948) followed, and sodium mersolate was used as emulsifier. Experimental conditions, proportions of materials used, and the results obtained are tabulated. Molecular weights of the copolymers ranged up to 476 000, and the phosphorus content was 10.5%. The yield of copolymer was found to increase at higher reaction temperatures. The authors thank S. A. Pavlova and her co-workers for determining

AP5008358

weights. Orig. art. has: 2 tables.

Institut elementoorganicheskikh soyedineniy, AN SSSR (Institute of  
Organic Compounds, AN SSSR)

02Apr62

ENCL: 00

SUB CODE: GC, OC

001

OTHER: 002

REF ID: A5003834 PC-4/Pr-4 RPL RM/JH  
3/0190/65/007/001/0129/0134

Kolesnikov, G. S.; El' Said Ali Khasan; Smirnova, O. V.

Mechanism of the catalytic action in the synthesis of polycarbonates by  
polycondensation

Uzhekomolekulyarnyye soyedineniya, v. 7, no. 1, 1965, 120-134

polycarbonate, interfacial polycondensation, tertiary amine, phosgene

The catalytic activity of tertiary amines and salts of tertiary  
amines in the synthesis of polycarbonates from phosgene and diphenols was

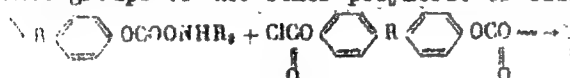
AP5003834

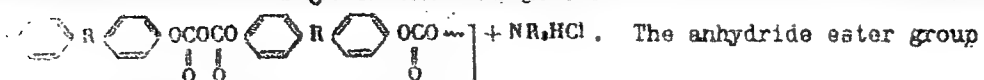
Identify to  $\text{OCCOH}$  groups which react very slowly (if at all) with  $\text{NaOAr}$ .  
 The  $\text{OCCOH}$  groups react with I (or another tertiary amine), forming the salt



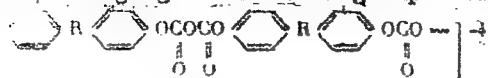
$\text{---OCO---} \text{C}_6\text{H}_4 \text{---R---} \text{C}_6\text{H}_4 \text{---COONHR}_3 + \text{H}_2\text{O}$  The salt reacts with the nonhydrolyzed

ate groups of the other polymeric or oligomeric molecule





changes, changing to an ester group with formation of  $\text{CO}_2$ , as shown by



NR: AP5003834

hydrolysis of the chloroformate group does not stop the polymer chain and a higher-molecular polycarbonate is produced. Tertiary amines and salts of tertiary ammonium bases which do not form insoluble products with phosgene are catalysts, while only salts of quaternary ammonium bases (capable of undergoing transformation to tertiary amines) are active. Orig. art. has: and 3 formulae. D

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleeva  
(Chemico-Technical Institute)

24Mar64

ENCL: 00

SUB CODE: 00

002

OTHER: 004

GAZPROM, A.S.; SOE-947A, T.A.; KOLEENIKOV, G.S.

Carbamide polymers and copolymers. Part 55. Vysokaya, 1964. 6  
no. 1125-1127. 30 164. (MIRA 1312)

1. Institut elementoorganicheskikh soedineniy AN SSSR.



ACCESSION NR: AP4032562

S/0190/64/006/004/0615/0619

AUTHORS: Kolasnikov, G. S.; Safaraliyeva, I. O.; Rodionova, Ye. F.

TITLE: Carbochain polymers and copolymers. 53. Polymerization kinetics of dimethyl vinylphosphinate

SOURCE: Vysokomolek. soedin., v. 6, no. 4, 1964, 615-619

TOPIC TAGS: polymer, copolymer, polymerization, polymerization kinetics, ester, dimethyl vinylphosphinate, azobutyronitrile, activation energy, polymerization coefficient

ABSTRACT: The polymerization of dimethyl vinylphosphinate was conducted in dilatometers in the presence of 1 mol/% azo-bis-isobutyronitrile at 40, 50, 60, and 70C. Upon the completion of polymerization the dilatometers were cooled in dry ice, the contents were dissolved in methanol and were distilled in vacuum at 56C to remove the methanol and residual monomer. The molecular weights of the polymers obtained within the 40-70C range were 5900-8970. The reaction proceeded at  $0.56-11.9 \text{ } \%/ \text{sec} \cdot 10^3$ ; the activation energy was 22 kcal/mole. It was found that

Cont 1/2

ACCESSION NR: AP4032562.

the molecular weights of the polymers were far lower than could be expected by theoretical calculations. This discrepancy is interpreted by the authors as being due to the termination of the polymeric chain growth, resulting from the chain transfer via the monomer. Thanks are expressed to S. A. Pavlova and her collaborators for the determination of molecular weights. Orig. art. has: 2 tables and 3 charts.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute of Organoelemental Compounds AN SSSR)

SUBMITTED: 08Apr63

DATE ACQ: 11May64

ENCL: 00

SUB CODE: CC

NO REF SOV: 007

OTHER: 004

Card 2/2

KOLESNIKOV, G.S.

Copolymerization of monomers with two and more carbon -  
carbon double bonds. Vysokom. soed 6 no.3:559-560 Mr'64.  
(MIRA 17:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

WRITE BELOW THIS LINE

POSTCARD

ACCESSION NR: AP4025010

S/0062/64/000/003/0538/0543

AUTHOR: Kolesnikov, G. S.; Rodionova, Ye. F.; Luk'yanova, G. M.

TITLE: carbon chain polymers and copolymers  
Communication 50. Phosphorus containing derivatives of methacrylic acid.

SOURCE: AN SSSR. Izv. Seriya khimicheskaya, no. 3, 1964, 538-543

TOPIC TAGS: phosphorus methacrylic acid derivative, methacryloxyethyl-dialkyl-phosphate, polymer, copolymer, self extinguishing resin, monomer activity, styrene, methylmethacrylate, acrylonitrile, linear polymer, three dimensional polymer, cross linking, phosphorus containing monomer, synthesis, polymerization, copolymerization, organo phosphate polymer, property

ABSTRACT: Beta-methacryloxyethyl-dialkylphosphates were synthesized, polymerized and copolymerized and the properties of the polymers and copolymers were investigated. The monomers were synthesized according to the following reactions:

Card 1/3

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ACCESSION NR: AP4025010

insolubility of the beta-methacryloxyethylidialkylphosphate polymers and copolymers may be attributed to a three dimensional structure in which a chain with a portion of the phosphate alkyl radical is transferred and/or disproportionation occurs and small amounts of dimethacrylic derivatives act as cross-linking agents. Orig. art. has: 3 tables and 1 set of equations.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR (Institute of Organometallic Compounds, Academy of Sciences, SSSR)

SUBMITTED: 12Sep62

DATE ACQ: 17Apr64

ENCL: 00

SUB CODE: OC,OC

NO REF SOV: 005

OTHER: 004

Card 3/3

1. EPR(4)/EPR(4)/EPR(4)/EPR(4) Fe-4/Pr-4/Pr-4 RPL RM/CS/RM

NR: AT5002118

S/0000/64/000/000/0113/0117

G. S. Davydova, S. L. Klimanova, N. V.

Synthesis of methacrylates and acrylates containing elements of groups III and IV of the table

USSR. Institut neftekhimicheskogo sinteza. Sintet i svoystva monomerov (Synthesis and properties of monomers). Moscow: Nedra, 1964, 113-117

methacrylate, acrylate, homo-methacrylate, homo-acrylate

TOPIC TAGS: methacrylate, acrylate, boron methacrylate, aluminum methacrylate, acrylate, tin methacrylate, boron acrylate, aluminum acrylate, silicon acrylate, aluminum methacrylate, germanium acrylate, tin acrylate

1. Methacrylates and acrylates of trialkyl-substituted boron, aluminum, silicon, and tin were synthesized and the properties of the derivatives were studied. 2. Dialkyl aluminum and unsaturated acids polymerized and copolymerized thermally in the presence of initiators, forming viscous, transparent polymers, very difficultly soluble in organic solvents (except dimethylformamide). Block thermal polymerization and copolymerization of dialkyl chromanthracene anhydride yielded viscous liquids or waxy, solid polymers and copolymers (very difficultly soluble in organic solvents except dimethylformamide). Methacrylyltriethylgermanium polymerized and copolymer-

1/2  
NR: AT5002118

1 2  
methylmethacrylate and styrene in accordance with the radical mechanism, form-  
parent, colorless, glassy polymers and copolymers. Orig. art. has: 5 tables and



U-1014444

CLASSIFICATION: None

DATE ATTACHED: 30Jul84

ENCL: 00

SUB CODE: OC,GC

REASON FOR SOV: 013

OTHER: 011

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2/2

L 41130-45

ACCESSION NO: AT3003110

was also formed by isomerization during the block polymerization of 3,3,3-trichloropropene with benzoyl peroxide, and isomerization decreased the yield of solid polymer from 6.1% at 70°C to 0.2% at 100°C. A viscous, low-molecular, liquid polymer was also formed. Solid polymer was also formed in 37.3% yield in 150 hours under irradiation, and fractionated into soluble polymer and a fraction which was soluble only in tetrahydrofuran or hot benzene. Copolymers, which are not described, were formed with methyl methacrylate, styrene, vinyl acetate, and acrylonitrile. By a similar technique, 1,1,2-trichloro-1,3-butadiene was prepared via 1,1,2-trichloro-1-butene. Formed in 30% yield with benzene.

2 01130-43  
ACCESSION NO: AT8008110

ASSOCIATION: None

SUBMITTED: 30Jul64

ENCL: 00

SUB CODE: OC, GC

NO REF BOV: 001

OTHER: 003

KOLESNIKOV, G.S., *otv. red.*

[Chemical properties and the modification of polymers]  
Khimicheskie svoistva i modifikatsia polimerov; sbornik  
statei. Moskva, Izd-vo "Nauka," 1964. 286 p.  
(MIRA 17:6)